

AMENDMENTS TO THE CLAIMS

This listing of claims replaces all prior versions and listings of claims in the application:

1. (Currently Amended) A method of building a combined workflow comprising:

storing a first private workflow and a second private workflow in a computer-readable storage medium coupled to one or more computer processors and having instructions tangibly stored thereon which, when executed by the one or more computer processors, cause the one or more computer processors to perform operations, the first private workflow being associated with only a first party and including a confidential first plurality of actual tasks, and the second private workflow being associated with only a second party and including a confidential second plurality of actual tasks;

accessing the first and second private workflows from the computer-readable storage medium;

accepting the first private workflow into a first tier of a multi-tiered workflow mode representing the first private workflow as a first matrix in which the first plurality of tasks are each represented as first vertices;

accepting the second private workflow into the first tier of the multi-tiered workflow mode;

representing the second private workflow as a second matrix in which each of the second plurality of tasks are represented as second vertices;

abstracting, by the one or more computer processors, the first private workflow and the second private workflow in a second tier of the multi-tiered model to provide respective first and second abstracted, non-confidential views of the first and second private workflows to the second party and the first party, respectively, the first abstracted view including a first plurality of groupings of the first plurality of tasks, and the second abstracted view including a second plurality of groupings of the second plurality of tasks;

defining first state dependencies between the first plurality of actual tasks of the first private workflow and the first abstracted view, and second state dependencies between the

second plurality of actual tasks of the second private workflow and the second abstracted view, the first and second state dependencies assuring that the respective first and second abstracted views accurately represent states of the corresponding first and second pluralities of actual tasks; defining control flow dependencies between the first abstracted view and the second abstracted view, the first and second control flow dependencies expressing interaction of the first and second private workflows;

ordering the first plurality of groupings and the second plurality of groupings from the first and second, different private workflows into a single combined workflow in a third tier of the multi-tiered workflow model, the combined workflow being shared by the first party and the second party and having a task order that, when executed, provides a ~~desired~~ result of a business collaboration between the first party and the second party;

adding ordering tasks to the combined workflow, the ordering tasks being operable to implement the order of the combined workflow and thereby achieve the ~~desired~~ result; and

logging interactions between the first party and the second party during execution of the combined workflow;

wherein abstracting the first private workflow and the second private workflow further comprises:

receiving a first user input selecting one of the first plurality of actual tasks that the user intends to be maintained as confidential,

when the selected actual task comprises a type SPLIT task, traversing the first workflow in two directions to find two type JOIN tasks, one task in each direction,

when the selected actual task comprises a type ACTIVITY task, traversing the first workflow in two directions to find two adjacent tasks, one task in each direction,

when the selected actual task comprises neither a type SPLIT task or a type ACTIVITY task, traversing the first workflow in a first direction to find a type JOIN task, and traversing the first workflow from the type JOIN task in a second direction to find a type SPLIT task,

identifying a respective path from the selected actual task to each of the type JOIN tasks, to each of the adjacent tasks, or to the type JOIN task and the type SPLIT task,

providing one or more of the paths as possible user selections,

receiving a second user input selecting one of the paths, the selected path including at least the selected one of the first plurality of actual tasks, and abstracting the selected path in the first workflow view.

2. (Original) The method of claim 1 wherein adding ordering tasks comprises forming a sequential flow which interleaves implementation of the first plurality of tasks and the second plurality of tasks.
3. (Original) The method of claim 1 wherein adding ordering tasks comprises forming a parallel flow of a first task within the first plurality of tasks and a second task within the second plurality of tasks.
4. (Original) The method of claim 1 wherein adding ordering tasks comprises adding at least one of conjunctive splitting and joining tasks which specify the task order.
5. (Original) The method of claim 1 wherein adding ordering tasks comprises adding at least one of alternative splitting and joining tasks which specify the task order.
6. (Previously Presented) The method of claim 1 wherein adding ordering tasks comprises adding a first splitting task which designates that a first task within the first private workflow is followed by a first following task and a second following task.
7. (Previously Presented) The method of claim 6 wherein adding ordering tasks comprises adding the first following task as a second task within the second private workflow.
8. (Previously Presented) The method of claim 6 wherein adding ordering tasks comprises adding the first following task as a first joining task, the first joining task designating a second task within the second private workflow as following the first joining task and the first splitting task.

9. (Previously Presented) The method of claim 8 wherein adding ordering tasks comprises adding a second splitting task following the second task within the second private workflow, the second splitting task designating that the second task is followed by a third following task and a fourth following task.

10. (Previously Presented) The method of claim 9 wherein adding ordering tasks comprises adding the third following task as the second following task, the second following task being a second joining task within the first private workflow that designates that a third task within the first private workflow follows the second following task.

11. (Previously Presented) The method of claim 10 wherein adding ordering tasks comprises adding the fourth following task as a third joining task within the second private workflow, the third joining task designating that a fourth task within the second private workflow follows the third joining task and the third task within the first private workflow.

12. (Previously Presented) The method of claim 11 wherein a second ordering task is a joining task which designates a fourth task within the second private workflow, the fourth task following the second task within the combined workflow.

13. (Previously Presented) The method of claim 9 wherein adding ordering tasks comprises:
adding a third task within the first private workflow as the second following task;
adding a second joining task within the first private workflow as the third following task,
the second joining task designating that a fourth task within the first private workflow follows the third following task.

14. (Previously Presented) The method of claim 1 wherein ordering the first plurality of tasks comprises inputting the task order from an operator.

15. (Cancelled)

16. (Previously Presented) The method of claim 1 wherein adding ordering tasks comprises:
inserting the first matrix and the second matrix into a third matrix;
modifying a selected value within the third matrix, thereby reflecting a construction or removal of a selected dependency between two vertices within the first plurality of tasks, consistent with the task order;

adding a fourth vertex before a first of the two vertices, the fourth vertex having a first chosen value reflecting a first new dependency between the fourth vertex and the first of the two vertices; and

adding a fifth vertex after the first of the two vertices, the fifth vertex having a second chosen value reflecting a second new dependency between the fifth vertex and the first of the two vertices.

17. (Cancelled)

18. (Original) The method of claim 1 further comprising selecting a subset of the combined workflow for execution by the first party.

19. (Original) The method of claim 18 wherein selecting a subset comprises determining that the subset includes a third plurality of tasks, each consecutive pair of the third plurality of tasks connected by a dependency.

20. (Original) The method of claim 18 wherein selecting a subset comprises determining that a last task within the third plurality of tasks precedes at most one subsequent task within the combined workflow.

21. (Original) The method of claim 20 wherein selecting a subset further comprises determining that no internal task within the third plurality of tasks, exclusive of the last task, immediately precedes an external task that is not included within the third plurality of tasks.

22. (Original) The method of claim 20 wherein selecting a subset further comprises determining that no internal task within the third plurality of tasks, exclusive of a first task of the third plurality of tasks, immediately succeeds an external task that is not included within the third plurality of tasks.

23. – 36. (Cancelled)

37. (Currently Amended) A computer-readable medium tangibly encoded with a computer program comprising instructions that, when executed, operate to cause ~~a~~ one or more computer processors to perform operations comprising:

accepting a first private workflow into a first tier of a multi-tiered workflow model, the first private workflow comprising a confidential first plurality of actual tasks implemented by a first party;

representing the first private workflow as a first matrix in which the first plurality of actual tasks are each represented as first vertices;

accepting a different, second private workflow into the first tier of the multi-tiered workflow model, the second private workflow comprising a confidential second plurality of actual tasks implemented by a second party;

representing the second private workflow as a second matrix in which each of the second plurality of actual tasks are represented as second vertices;

abstracting the first workflow and the second private workflow in a second tier of the multi-tiered model to provide respective first and second abstracted, non-confidential views of the first and second private workflows to the second party and the first party, respectively, the first abstracted view including a first plurality of groupings of the first plurality of actual tasks, and the second abstracted view including a second plurality of groupings of the second plurality of actual tasks;

defining first state dependencies between the first plurality of actual tasks of the first private workflow and the first abstracted view, and second state dependencies between the second plurality of actual tasks of the second private workflow and the second abstracted view,

the first and second state dependencies assuring that the respective first and second abstracted views accurately represent states of the corresponding first and second pluralities of actual tasks;

defining control flow dependencies between the first abstracted view and the second abstracted view, the first and second control flow dependencies expressing interaction of the first and second private workflows;

ordering the first plurality of groupings and the second plurality of groupings from the first and second, different private workflows into a single combined workflow in a third tier of the multi-tiered workflow model, the combined workflow being shared by the first party and the second party and having a task order that, when executed, provides a desired result of a business collaboration between the first party and the second party; and

adding ordering tasks to the combined workflow, the ordering tasks being operable to implement the order of the combined workflow and thereby achieve the desired result,

wherein abstracting the first private workflow and the second private workflow further comprises:

receiving a first user input selecting one of the first plurality of actual tasks that the user intends to be maintained as confidential,

when the selected actual task comprises a type SPLIT task, traversing the first workflow in two directions to find two type JOIN tasks, one task in each direction,

when the selected actual task comprises a type ACTIVITY task, traversing the first workflow in two directions to find two adjacent tasks, one task in each direction,

when the selected actual task comprises neither a type SPLIT task or a type ACTIVITY task, traversing the first workflow in a first to direction to find a type JOIN task, and traversing the first workflow from the type JOIN task in a second direction to find a type SPLIT task,

identifying a respective path from the selected actual task to each of the type JOIN tasks, to each of the adjacent tasks, or to the type JOIN task and the type SPLIT task,

providing one or more of the paths as possible user selections,

receiving a second user input selecting one of the paths, the selected path including at least the selected one of the first plurality of actual tasks, and

abstracting the selected path in the first workflow view.

38. (Currently Amended) A system comprising:

one or more ~~computer processors~~ ~~computers~~; and
a computer-readable medium coupled to the one or more computer processors and
~~computers~~ having instructions tangibly stored thereon which, when executed by the one or more
~~computer processors~~ ~~computers~~, cause the one or more computer processors ~~computers~~ to
perform operations comprising:

accepting a first private workflow into a first tier of a multi-tiered workflow
model, the first private workflow comprising a confidential first plurality of actual tasks
implemented by a first party,

representing the first private workflow as a first matrix in which the first plurality
of actual tasks are each represented as first vertices,

accepting a different, second private workflow into the first tier of the multi-tiered
workflow model, the second private workflow comprising a confidential second plurality of
actual tasks implemented by a second party,

representing the second private workflow as a second matrix in which each of the
second plurality of actual tasks are represented as second vertices,

abstracting the first workflow and the second private workflow in a second tier of
the multi-tiered model to provide respective first and second abstracted, non-confidential views
of the first and second private workflows to the second party and the first party, respectively, the
first abstracted view including a first plurality of groupings of the first plurality of actual tasks,
and the second abstracted view including a second plurality of groupings of the second plurality
of actual tasks,

defining first state dependencies between the first plurality of actual tasks of the
first private workflow and the first abstracted view, and second state dependencies between the
second plurality of actual tasks of the second private workflow and the second abstracted view,
the first and second state dependencies assuring that the respective first and second abstracted
views accurately represent states of the corresponding first and second pluralities of actual tasks;

defining control flow dependencies between the first abstracted view and the
second abstracted view, the first and second control flow dependencies expressing interaction of
the first and second private workflows;

ordering the first plurality of groupings and the second plurality of groupings from the first and second, different private workflows into a single combined workflow in a third tier of the multi-tiered workflow model, the combined workflow being shared by the first party and the second party and having a task order that, when executed, provides a desired result of a business collaboration between the first party and the second party, and

adding ordering tasks to the combined workflow, the ordering tasks being operable to implement the order of the combined workflow and thereby achieve the desired result,

wherein abstracting the first private workflow and the second private workflow further comprises:

receiving a first user input selecting one of the first plurality of actual tasks that the user intends to be maintained as confidential,

when the selected actual task comprises a type SPLIT task, traversing the first workflow in two directions to find two type JOIN tasks, one task in each direction,

when the selected actual task comprises a type ACTIVITY task, traversing the first workflow in two directions to find two adjacent tasks, one task in each direction,

when the selected actual task comprises neither a type SPLIT task or a type ACTIVITY task, traversing the first workflow in a first direction to find a type JOIN task, and traversing the first workflow from the type JOIN task in a second direction to find a type SPLIT task,

identifying a respective path from the selected actual task to each of the type JOIN tasks, to each of the adjacent tasks, or to the type JOIN task and the type SPLIT task,

providing one or more of the paths as possible user selections,

receiving a second user input selecting one of the paths, the selected path including at least the selected one of the first plurality of actual tasks, and

abstracting the selected path in the first workflow view.